Translation

PATENT COOPERATION TREATY

PCT

10/019,486

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

3

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	**FOR FURTHER ACTION** See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/04363	International filing date (*day/month/year*) 16 May 2000 (16.05.00)	Priority date (*day/month/year*) 29 June 1999 (29.06.99)
International Patent Classification (IPC) or national classification and IPC B60T 8/32,		
Applicant DAIMLERCHRYSLER AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 14 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
22 January 2001 (22.01.01)	14 September 2001 (14.09.2001)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP00/04363

I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

☒ the international application as originally filed.

☒ the description, pages _____, as originally filed,
pages _____, filed with the demand,
pages 1-10, filed with the letter of 27 June 2001 (27.06.2001),
pages _____, filed with the letter of _____.

☒ the claims, Nos. _____, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. 1-13, filed with the letter of 27 June 2001 (27.06.2001),
Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/fig 1/1, as originally filed,
sheets/fig _____, filed with the demand,
sheets/fig _____, filed with the letter of _____,
sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-13	YES
	Claims		NO
Inventive step (IS)	Claims	1-13	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

2. Citations and explanations

Please note:

This reasoned statement only applies to claims that have been rectified as indicated in **Box VIII**.

Documents cited:

The following documents published within the time limits are considered to be relevant to the application:

D1 = DE-C-43 29 140 (Mercedes-Benz AG);
D3 = DE-A-195 20 609 (Mitsubishi Jidosha Kogyo KK);
D7 = EP-A-0 819 591 (Daimler-Benz AG).

Novelty

D1 discloses a braking system with all of the features listed in the preamble of the sole independent Claim 1. None of the documents containing the prior art discloses all of the characterizing features of Claim 1 in conjunction with the features of the preamble of Claim 1.

Consequently, the subject matter of Claim 1 satisfies the

criterion for novelty according to PCT Article 33(2) and PCT Rules 64.1 to 6.3.

Claims 2 to 13 are directly or indirectly dependent on Claim 1. The subjects of these claims thus also are novel under PCT Article 33(2).

Inventive step:

In the braking system according to D1, the brake power assist unit is switched on if the output signals of two sensors (brake-pedal speed and the actuating force on the brake pedal) exceed reference values or one of the two output signals exceeds its associated reference value (see in particular column 5, lines 9-25).

A disadvantage of the first-mentioned solution is that the output signals of the two sensors do not simultaneously exceed their reference values. Hence, time is lost until the brake power assist unit is switched on, if desired.

A disadvantage of the latter of the above-mentioned solutions is that due to sensor deviations over the life of the brake power assist unit, it is switched on too quickly or too frequently.

The problem addressed by the invention can be seen as that of remedying the disadvantages of the braking system in D1.

The features of Claim 1 solve said problem whereby each braking circuit of the braking system has a pressure sensor with different reference values and according to which, after actuation of the first of two sensors, the

brake power assist unit is switched on for a limited period of time while awaiting the second sensor signal from the brake power control unit.

None of the documents cited in the international search report discloses the characterizing features of Claim 1 that in combination solve the problem mentioned (PCT Guidelines, Chapter IV-8.3a). Hence, the combination of features of the braking system claimed in Claim 1 for solving the above-mentioned problem is not suggested by the prior art.

Braking systems with one pressure sensor per braking circuit are commonly known from the prior art; see D3, for example. D7 describes the switching on of the brake power assist unit for a limited period of time in relationship with accelerator pedal return speed.

The subject matter of Claim 1 thus satisfies the criterion of inventiveness under PCT Article 33(3) and PCT Rules 65.1 and 65.2.

Because Claims 2-13 are directly or indirectly dependent on Claim 1, the subjects of these claims also involve an inventive step under PCT Article 33(3).

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1. Parts of the problem posed on page 1, final paragraph, of the present description are not sufficiently clear from the original application. Compare also PCT Article 34(2). On page 1 of the present description, the presentation of the prior art should have listed the disadvantages therein and posed their remedy as the problem to be solved.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. *Objections due to a lack of clarity in the claims (PCT Article 6):*

1.1. According to lines 3 and 4 of the present Claim 1, the braking system according to the invention has at least one pressure sensor for producing a test signal representing driver activity.

1.2. Lines 6 and 7 of the present Claim 1 read "the test signals of the sensors". Hence, there are at least two sensors in the braking system. This could have been clarified in Claim 1, e.g., by changing lines 3-6 of present Claim 1 to "and with at least two sensors (22; 23) for producing test signals representing driver activity, said signals being fed into a braking pressure control unit".

1.3. The relationship of the "two pressure sensors" mentioned in the first line of the characterizing part of the present claim with the "sensor(s)" defined in the preamble is not clear. That could have been corrected by amending the first line of the characterizing part of Claim 1 to read "characterized in that two sensors of the minimum of two sensors are pressure sensors to which".

1.4. Because present Claim 1 is a device claim, it should have been clarified that a "means" carries out the process step(s) mentioned in Claim 1. That could be remedied, for example, by inserting the words "from the brake pressure control unit" in line 8 of the

VIII. Certain observations on the international application

present Claim 1 between "exceed" and "a switch-on actuating signal" [to indicate the source of the signal].

1.4.1. These words should also have been inserted into line 3 of Claims 6 and 11, respectively, between "that" and "a".

1.5. For the sake of uniformity (cf. the present Claim 1, lines 5 and 6), the expression "the control unit" in line 4 of Claim 4 should read "the brake pressure control unit". See also PCT Rule 10.2.

1.6. For the sake of completeness, the term "the brake pressure control unit" should have been inserted into line 5 of present Claim 5 following the term "processing cycles".

1.7 Reference sign "10" in present Claims 1 (line 7) and 6 (line 5) should have been deleted.

1.8 It is unclear in Claim 7 that the path sensor is included in addition to the pressure sensors already mentioned and/or defined in the characterizing part of
Claim 1. That could have been remedied for instance by inserting the word "further" between "that" and "at least" in line 3 of the present Claim 7. (See the present description, page 7, line 1.)

1.9 The terms "a switch-on actuating signal" in the third line of present Claims 8-10 should have read "the switch-on actuating signal"; cf. the present

VIII. Certain observations on the international application

Claim 1, line 8.

2. *Objections due to lack of clarity in the description*:

2.1 Page 3, paragraph 3, lines 1-3, apparently contradict the present Claim 1 (and/or the present Claim 1 is not supported by the present description) (PCT Article 6) and should have been brought into line with the present Claim 1.

2.2 Because two pressure sensors are claimed in Claim 1, the word "optionally" (page 6, paragraph 2, penultimate line) should have been deleted.

2.3 In paragraphs two and three on page 8 of the present description, the claimed invention is described. Therefore, the word "according to the invention" should have been inserted between the words "will" and "a".

2.4 For the sake of uniformity, the term "sensors" should read "pressure sensors" on page 8, paragraph 2, lines 2, 3, and 7.

2.5 For the sake of uniformity, the term "sensors" should read "pressure sensors" on page 8, paragraph 3, line 1.

2.6 The final sentence of paragraph 2 on page 10 of the present description should have been brought into line with present Claim 1 because Claim 1 is not supported by this sentence (PCT Article 6).